

## **LESSON PLAN**

### **Cold and Hot Weather Injuries**

**TASK:** Explain the principles of injuries produced by exposure to cold or heat

**CONDITIONS:** In a small group discussion environment

**STANDARDS:** Be familiar with the following:

1. Environmental Factors
2. Host Factors
3. Prevention

**TARGET AUDIENCE:** Leaders and soldiers at all levels.

**RECOMMENDED INSTRUCTION TIME:** 1 Hour

#### **COLD WEATHER INJURIES**

1. Environmental Factors: Temperature, humidity, precipitation, and wind modify the rate of body heat loss. Low temperatures and low relative humidity favor development of frostbite. Higher temperatures (just above freezing to 50 degrees F) together with moisture are usually associated with trench foot. Wind velocity accelerates body heat loss under conditions of both coldness and wetness. The effect of low temperatures is intensified as air movement passing the body increases. This can be the result of wind against the body or the effect of a body moving rapidly through the air, such as in running, skiing, or riding in an open tactical vehicle.

2. Individual soldier factors leading to cold injury.

a. Age Within the usual age range of combat personnel, age is not significant. Trench foot and frostbite injuries are higher in front-line riflemen, and predominate in the lower ranks because they have greater exposure. The decreased incidence of cold injury among higher ranks is due to a combination of factors, such as experience, leadership, receptivity to training, and less exposure. Other factors which contribute to cold injuries are:

- b. Previous cold injury
- c. Fatigue
- d. Discipline, training and experience
- e. Geographic origin
- f. Nutrition

g. Activity level (more is better)

h. Drugs and Medications (talk to the doctor if you are in a cold environment)

### 3. Prevention of Cold Injuries

a. Meteorological Data - know the weather

b. Cold Injury Control Officer

c. The Buddy system - check each other for frostbite.

d. Personal Measures - dry clothes when possible.

e. Avoid immobilization - keep moving.

f. Clothing - maintain your issue gear.

Suggested vignette for discussion: A 20 year old female PFC is diagnosed with first degree frostbite in her left toe. When asked if she informed her supervisor of her cold feet she stated she never complained because she was afraid of being labeled as “not tough enough” to take the cold.

*References: AR 40-5, FM 21-10*

### *Discussion Questions*

*What could have been done to avoid that situation?*

*Do you have confidence in your cold weather gear? Why? Why not?*

*How can you help other soldiers in this unit avoid cold injury?*

## HEAT INJURIES

1. Environmental Factors: Exposure to high environmental temperature produces stress on the body which may lead to a heat injury. The conditions which influence the heat equilibrium of the body and its adjustments are the air temperature; the temperature of surrounding objects; the sun's radiant heat; the vapor pressure of the water in the air (relative humidity); the air movement; and the amount and type of clothing worn. Another important factor which influences the heat equilibrium is the metabolic heat produced by the body as a result of physical activity.

## 2. Types of heat injury

- a. Heat cramps
- b. Heat exhaustion
- c. Heatstroke

## 3. Individual soldier factors leading to heat injury

- a. Overweight
- b. Alcoholic beverages
- c. Fever
- d. Drugs
- e. Tight clothing
- f. Fatigue
- g. Water intake

## 4. Prevention of heat injuries

- a. Water
- b. Salt
- c. Acclimatization
- d. Physical condition
- e. Protection from the environment
- f. Education
- g. The WBGT Index

Suggested vignette for discussion: A 35 year old SFC is diagnosed with heat cramps and dehydration. Stated he never felt thirsty so he gave his canteen to the soldier next to him who didn't have enough water with him. *References: AR 40-5, FM 21-10*

### *Discussion Questions*

*What could have been done to avoid that situation?*

*How practical is the "Buddy System" in you (our) unit?*

*Do you have confidence in your hot weather gear? Why? Why not?*

*How can you help other soldiers in this unit avoid heat injury?*